How patients perceive a telemedicine system in home care

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The objective was to measure patients' perceptions of a telehomecare system before and after participation in order to identify possible changes. The system utilizes videoconferencing to enable interactions between patients and nurses. Patients viewed a videotape of a "virtual visit" and filled out a questionnaire (pre-test). After random assignment to a control group receiving standard care or an experimental group receiving additionally videoconferencing sessions, they filled it out again when exiting the system (post-test). The control group consisted of 11 and the experimental group of 17 patients. There was a statistically significant positive perception change for the experimental group. Patients evaluated their experience as positive and felt comfortable with the technology.

Introduction

Home health care (HHC) is a fast growing component of today's health care system. Rural and under-served urban patients often face problems with access to HHC services. Telemedicine in home care, also knows as telehomecare (THC), uses modern technology to enable the communication of the care provider at the clinical site with the patients at their home over a device with audio and video features. It can, therefore, decrease traveling time and costs for nurses and increase the number of patients a HHC nurse can interact with every day.

Most telemedicine studies reveal the extent of patients' satisfaction but seldom identify the system's aspects evaluated as satisfactory. No study has investigated patients' perceptions before and after participation in a telemedicine system. This could determine whether patients' reactions are truly consequent of the application's features and predict the diffusion of similar applications. The aim of this study was to address the literature gap by measuring patients' perceptions of THC before and after they have experienced it with a control-experimental design.

Methods

The study was conducted as part of the TeleHomeCare project at the University of Minnesota. It utilizes TV-based videoconferencing to enable interactions between patient and care provider ("virtual visits"). This project includes one urban and three rural home care agencies and focuses on obstructive pulmonary disease, heart failure and wound care. The instrument TMPQ (copyright Univ. of MN) was used. It measures patients' perceptions of THC and includes 17 items on a 5-point Likert Scale. The higher the total score the more positive is the overall perception one has of THC. Patients viewed a videotape that demonstrated a virtual visit. They filled out the questionnaire (pre-test) and were then randomly assigned to a control group where they received standard home care services or to an experimental group where they additionally received videoconferencing sessions. Patients of both groups filled out the questionnaire a second time (post-test) after four weeks. Paired t-tests were performed to compare total scores and responses to each of the items within the groups for the pre-and post test and an unpaired t-test to compare change of perceptions between the two groups.

Results

11 patients were randomly assigned to the control and 17 patients to the experimental group. No statistical difference existed in sex, age or diagnosis distribution in the two groups. There was no statistically significant change in the total scores of the control group patients for the two tests. There was a statistically significant change between the pre- and post-scores of the experimental group (t=5.667, P<0.0001) indicating that patients have a more positive perception of THC after they have experienced the system. There was more agreement that a nurse can get a good understanding of their medical problem, that the system cannot violate their privacy and the equipment does not seem difficult to handle. They seemed to have more trust in the technology. The scoring decreased at the post test indicating a less positive perception for two items: THC saving time for the patients, and THC enabling them to contact the nurse easier.

Discussion

The statistics demonstrate that experience with THC leads to an overall more positive perception of this concept. The sample size for both groups was not large; however, the measured differences were of statistical significance and a post-hoc power analysis revealed a power of 0.83. This study indicates that patients can become more familiar with technology over time and seem to be less concerned about THC violating their privacy. Rapidly developing technologies can lead to low-cost high quality videoconferencing equipment but it is the concept's acceptability by patients that will be determining its success.